

PATENT SPECIFICATION (11)

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(54) A UNIT FOR TREATING WATER

(71) We, VITCO PATENS A.G. organised and existing under the laws of Liechtenstein, of MAUREN LIECHTENSTEIN, do hereby declare the invention, for which we pray a Patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a unit for treating and supplying drinking water.

10 Application No. 33620/74 (Specification 1,470,874) filed by the same Applicant relates to a unit for treating and feeding liquids. Many technical problems were solved by the above mentioned patent application and especially 15 the following:

- the treating elements and their containers are not subjected to mains water pressure and the water hammering;
 - the water flow control from the unit is 20 easy and more accurate because it is not influenced by the treating elements and/or by fluctuations of the main pressure;
 - the modular construction and connections between the several components (mechanical 25 filters, electrovalves, tanks of the treating elements, water tanks with level controls, etc.) allows space saving and also provides for easier and simpler connections between the components;
 - 30 —water obtained from the unit is not polluted because the water tank is sealed and air is vented through a filter.
- Specification No. 1,470,874 had the object to provide a liquid treating and supplying unit, 35 particularly water, which comprised liquid inlet means, a manually operable supply valve to manually control liquid flow from said liquid inlet means, a mesh filter in said supply valve, a flow control device downstream of said 40 mesh filter, a liquid-treatment apparatus comprising a first tank connected downstream to said control device and having a liquid treatment cartridge therein for treating the liquid received in said first tank, a second tank 45 vented to the atmosphere connected to said

first tank for receiving liquid treated in said first tank, liquid-level control means for maintaining a constant liquid level in said second tank comprising means for sensing the level of the liquid in said second tank, and means 50 responsive to said sensing means for controlling the supply of liquid to said first tank in dependence upon the level sensed in said second tank, said means responsive to said first tank. 55

In the unit of the abovementioned patent Specification the flow control device (controlling the flow when the main pressure varies) is located upstream of the treating element and therefore the treating element and its container 60 are never submitted to either mains pressure, water hammering or to excessive flows. The unit of the parent patent has the advantage that the treatment element will last longer, will perform better and can be manufactured with 65 lighter and less expensive materials.

It was now discovered that the unit could be further simplified when used for treating drinkable water for alimentary purposes.

It is well known that city water mains 70 supply good drinking water from a sanitary standpoint but the flavour may be poor either because of chlorine added by the water-board or because of natural mineral contents, e.g. iron, sulphur in the water. 75

For improving the flavour of the water and its acceptance special treatment devices are available by which the water, flowing through them, is purified, dechlorinated, etc. These devices are actually inserted in tanks strong 80 enough to withstand mains pressure and water hammering but nevertheless can very easily produce irreparable damages to them.

The object of the present invention is to provide a simple, inexpensive easily installable unit for treating and supplying drinking water 85 and made up by replaceable and durable elements, which allows an adequate water treatment without any need of tanks resistant to water pressure and hammering. 90

According to the present invention there is provided a unit for treating and supplying water for drinking comprising a valve assembly and a water treatment element, said valve assembly having a body provided with first water inlet communicating with a first water outlet of the body and further provided with a second water inlet communicating with a second water outlet of the body, said body housing a shut off valve provided between the first water inlet and the first water outlet and a constant flow control means between said first inlet and first outlet and located either upstream or downstream of the shut off valve, the water treatment element being arranged to receive water to be treated from said first outlet and to supply treated water to said second inlet for discharge from the body through the second outlet.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1: shows a sectional view of a valve assembly of a unit in accordance with the invention;

Figure 2: shows schematically the valve assembly of Figure 1 with special reference to the water inlets and outlets.

With reference to the drawings it will be seen that a valve assembly comprises a body 1.

The body 1 can be such as to be rigidly fixed to a support (a wall, a stud, etc.), or alternatively can be provided with a handle so as to be portable.

The body 1 has a first water inlet 10 and a first water outlet 11 which are in communication via a space 2 provided within the body 1. A shut off valve 3 is provided in the space 2 and can be closed to isolate the inlet 10 and outlet 11 from each other. The valve 3 may be manually operable, e.g. by a handwheel, or could possibly be electrically operated.

Within the body 1 is a constant flow control device 4 located between the inlet 10 and outlet 11, and (as shown in Figure 1) located downstream of the valve 3.

The body 1 is additionally provided with a second water inlet 12 and a second water outlet 13 which are in communication.

A water treatment element of known type (not shown) may be connected in the manner described below so as to form a treatment and supply unit in accordance with the invention.

In the illustrated embodiment, the water treatment element will be arranged to receive water to be treated by a hose A which connects the treatment element to the first outlet 11 of the body 1. The water to be treated will be supplied to the first inlet 10 of the body 1 by a hose B. A hose C serves to return treated water from the treatment element to the second inlet 12 of the body 1.

The hoses A, B, C may either be rigid or flexible whichever are more convenient for a

particular application.

The operation of the unit for treating and supplying drinking water is extremely simple.

The water from the mains is supplied through hose B to the interior space 2 of the body 1 where it may be shut off by the valve 3 which serves to isolate the treatment element from mains pressure and water hammering when no water is required.

Whenever the valve 3 is opened water flows through the constant water flow control device 4 and through the hose A to the treatment element. Treated water is supplied through the hose C to the second inlet 12 of the body 1 from where it flows freely from the second outlet 13.

The constant water flow control device 4 will be dimensioned to allow just the flow admitted for a good performance of the water treatment element and will consequently avoid the build up of pressure and/or water hammering while the water is flowing to the treatment element.

In other words when the water is drawn, the flow control device 4 will allow just sufficient pressure build up in the water treatment element to establish the small pressure required by the flow pressure drop in the treatment element itself. When no water is drawn, closure of the valve 3 will prevent the build up of pressure and/or water hammering in the tank of the treating elements.

It is clear that the described unit is functional and will find easy practical application close-by the bars and domestic faucets.

In addition the purchase and operating cost of the unit will be low: as a matter of fact the treatment elements will keep their efficiency longer because they are not submitted to the main pressure and hammering, they are always exactly rated to the instant flow.

Moreover everybody can install the unit and change the treating cartridge on a "do yourself basis".

In a modification of the illustrated embodiment, the water treatment element may be connected directly to the body 1 rather than by hoses A and C.

In a further modification (not illustrated) the constant flow device 4 may be located upstream of the shut off valve 3.

WHAT WE CLAIM IS:-

1. A unit for treating and supplying water for drinking comprising a valve assembly and a water treatment element, said valve assembly having a body provided with first water inlet communicating with a first water outlet of the body and further provided with a second water inlet communicating with a second water outlet of the body, said body housing a shut off valve provided between the first water inlet and the first water outlet and a constant flow control means between said first inlet and first outlet and located either upstream or downstream of the shut off valve, the water

- treatment element being arranged to receive water to be treated from said first outlet and to supply treated water to said second inlet for discharge from the body through the second outlet.
- 5 2. A unit according to Claim 1 wherein the body may be rigidly fixed to a support.
3. A unit according to the Claim 1 or 2 wherein the body is portable and is provided with a handle.
- 10 4. A unit according to Claims 1 or 2, wherein there are provided rigid hoses for connecting the first inlet of the body to a water main, for connecting first outlet to the treatment element and for connecting the treatment element to the second inlet.
- 15 5. A unit according to Claims 1 or 3, wherein there are provided flexible hoses for connecting the body to a water main, for connecting the first outlet to the treatment element, and for connecting the treatment element to the second inlet.
6. A unit according to any one of Claims 1 to 5, wherein the shut off valve is manually operable.
7. A unit according to any one of Claims 1 to 6, wherein the shut off valve is electrically operable.
8. A unit for treating and supplying drinking water substantially as herein described with reference to the accompanying drawings.
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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale

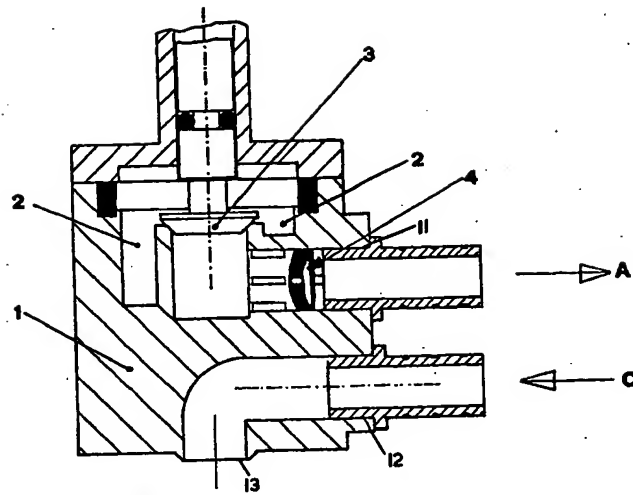


FIG. 1

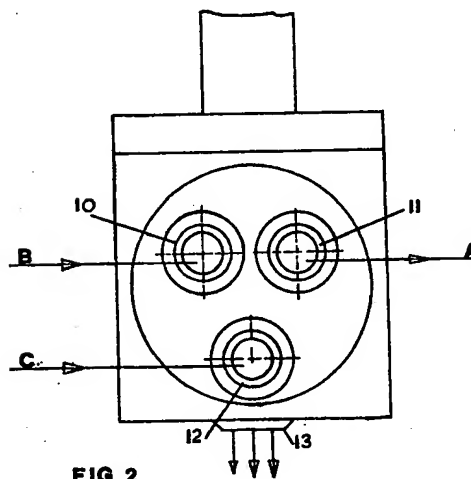


FIG. 2